

# Service Manual

## Stereo Radio Cassette Player



### RQ-V340 MECHANISM SERIES

#### ■ SPECIFICATIONS

##### General:

Power Requirement:

Battery: 1.5 V (one UM-3, "R6/LR6 battery)

AC; with optional AC adaptor RPAC1Z (For EB; RPAC1ZE)

18 mW (9 mW×2)...RMS (max.)

Power Output:

DC IN; 1.5 V (mini jack)

Input:

HEADPHONES; 16Ω, Ø3.5

Output:

Dimensions: 72 (W)×121 (H)×24.9 (D) mm

Dimensions:

Weight: 167 g without battery

##### Radio Section:

Radio Frequency Range:

FM; 87.5~108 MHz

AM; 520~1610 kHz

Intermediate Frequency:

FM; 10.7 MHz

Sensitivity:

AM; 455 kHz

FM; 2.5 µV/0.1 mW output (-3 dB Limit sens)

AM; 252 µV/m/0.1 mW output

##### Tape Deck Section:

Frequency Response: 30~18,000 Hz (NORMAL/CrO<sub>2</sub>/METAL)

Track System: 4-track 2-channel stereo playback

Tape Speed: 4.8 cm/s

Weights and dimensions shown are approximate.

Design and specifications are subject to change without notice.

Radio Cassette

**RQ-V340**

Color

(K) ..... Black Type

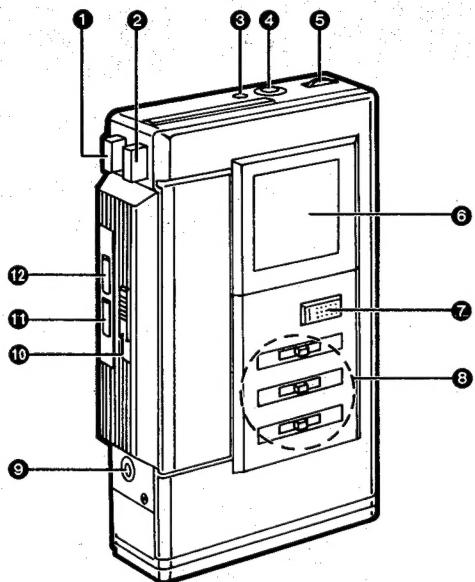
#### Area

Country Code	Area	Color
(E)	Continental Europe	(K)
(EB)	Great Britain	
(EG)	F.R. Germany	
(EF)	France	

**Panasonic**

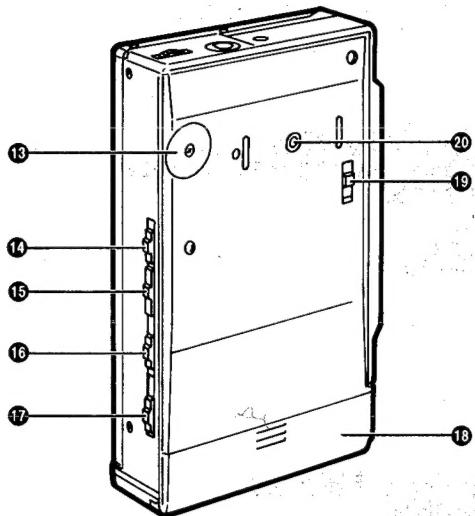
**Matsushita Electric Industrial Co., Ltd.**  
Central P.O. Box 288, Osaka 530-91, Japan

## LOCATION OF CONTROLS

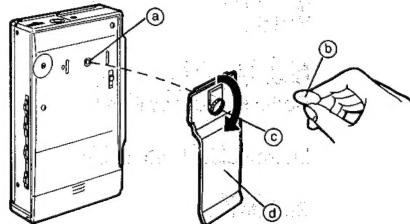


- ① Playback Button (◀ PLAY)
- ② Stop Button (■ STOP)
- ③ Tape/Battery Check Indicator (TAPE/BATT)
- ④ Headphones Jack (□) (16Ω, Ø3.5)
- ⑤ Volume Control (VOLUME)
- ⑥ Cassette Cover
- ⑦ XBS Switch (XBS)
- ⑧ Graphic Equalizer Controls
- ⑨ DC Input Jack (DC IN 1.5 V □-□ mini Jack)
  - Optional AC adaptor, RPAC1Z
  - For (EB) use optional AC adaptor, RPAC1ZE
- ⑩ Open Lever (OPEN)
- ⑪ Rewind Button (REW)
- ⑫ Fast Forward/Direction Button (FF • DIR)
- ⑬ Tuning Control (TUNING)
- ⑭ Function Selector (SELECTOR)
- ⑮ Reverse Mode/Band Selector (REV MODE/BAND)
- ⑯ \*Dolby Noise Reduction Switch (DOLBY NR)
- ⑰ Tape Selector (TAPE)
- ⑱ Battery Compartment
- ⑲ Hold Switch (HOLD)
  - This only works for ⑪ and ⑫ buttons.
- ⑳ Belt Clip Fixing Hole

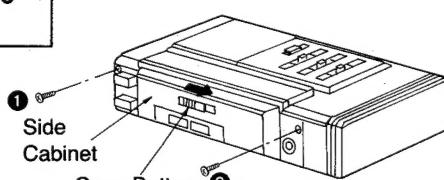
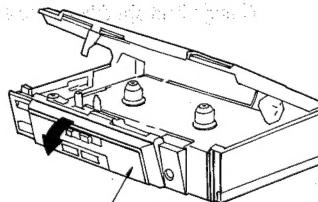
\*Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.  
"DOLBY" and the double-D symbol  are trademarks of Dolby Laboratories Licensing Corporation.

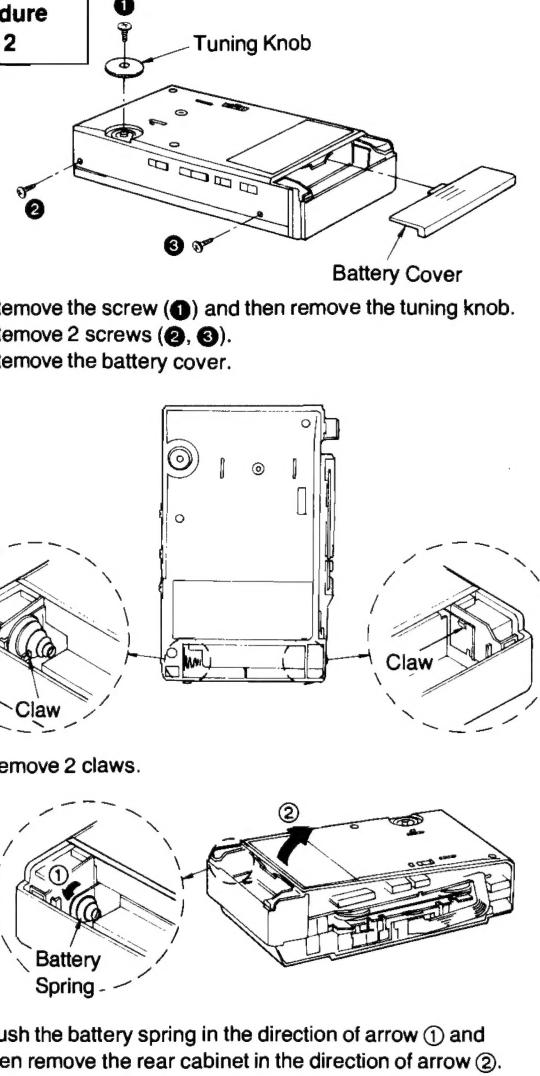
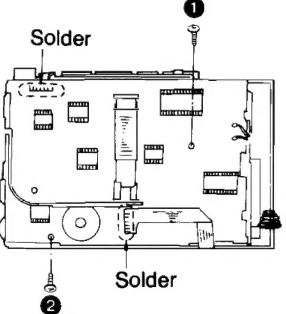
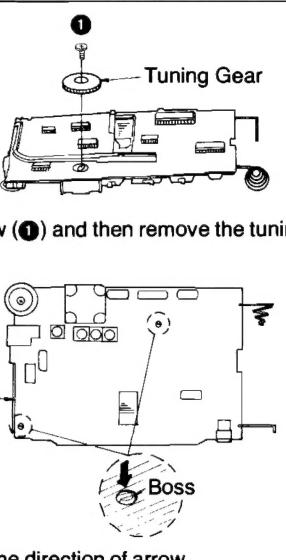
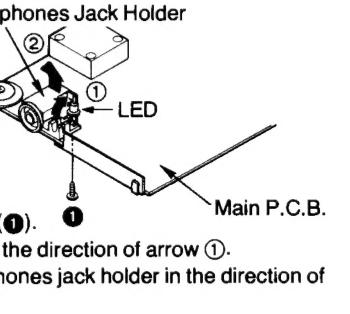
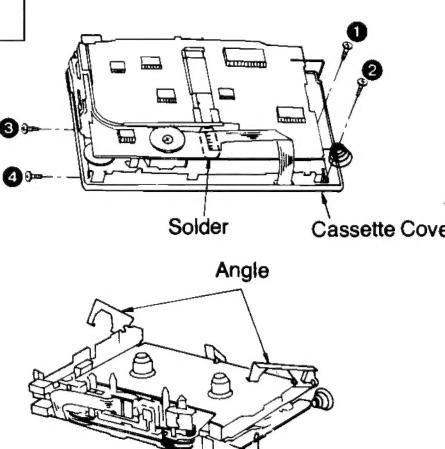
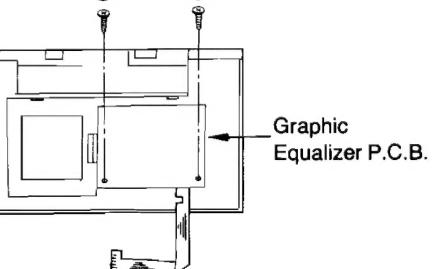


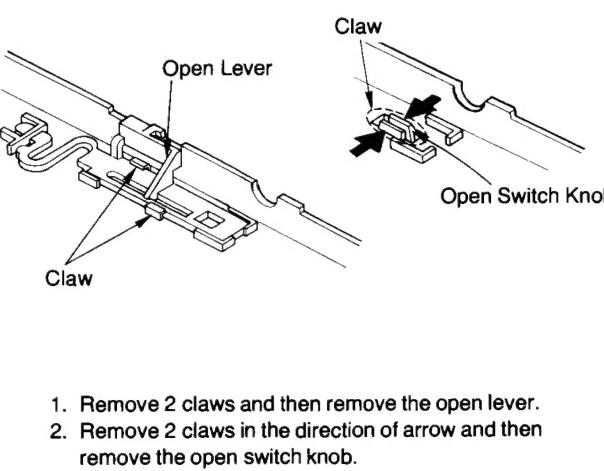
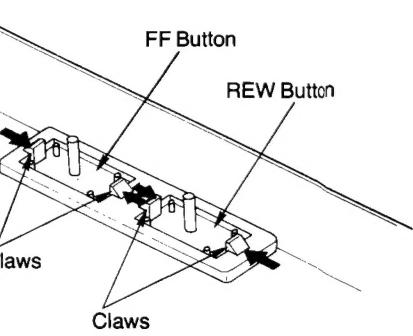
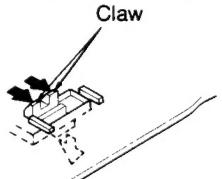
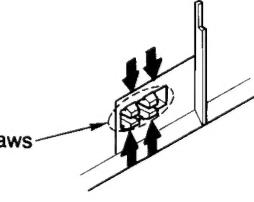
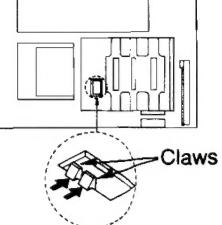
## BELT CLIP



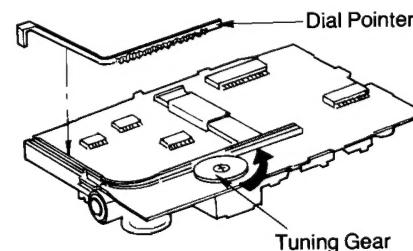
## DISASSEMBLY INSTRUCTIONS

Ref. No. 1	Removal of the Side Cabinet	
Procedure 1		
	 <ol style="list-style-type: none"> <li>1. Slide the open button and then open the cassette cover.</li> <li>2. Remove 2 screws (1, 2).</li> </ol>	 <ol style="list-style-type: none"> <li>3. Remove the side cabinet in the direction of the arrow.</li> </ol>

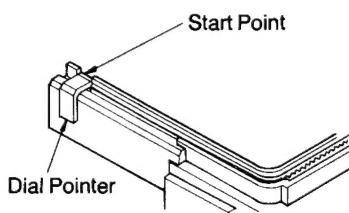
Ref. No. 2	<b>Removal of the Rear Cabinet</b>	Ref. No. 4	<b>Removal of the Main P.C.B.</b>
<b>Procedure 1→2</b>	 <p>1. Remove the screw (1) and then remove the tuning knob. 2. Remove 2 screws (2, 3). 3. Remove the battery cover. 4. Remove 2 claws. 5. Push the battery spring in the direction of arrow ① and then remove the rear cabinet in the direction of arrow ②.</p>	<b>Procedure 1→2→4</b>	 <p>1. Remove 2 solders. 2. Remove 2 screws (1, 2).</p>
Ref. No. 5	<b>Removal of the Dial Chassis</b>	Ref. No. 6	<b>Removal of the Headphones Jack Holder</b>
<b>Procedure 1→2→3→4→5</b>	 <p>1. Remove the screw (1) and then remove the tuning gear. 2. Push the boss in the direction of arrow.</p>	<b>Procedure 1→2→3→4→6</b>	 <p>1. Remove the screw (1). 2. Remove the LED in the direction of arrow ①. 3. Remove the headphones jack holder in the direction of arrow ②.</p>
Ref. No. 3	<b>Removal of the Cassette Cover</b>	Ref. No. 7	<b>Removal of the Graphic Equalizer P.C.B.</b>
<b>Procedure 1→2→3</b>	 <p>1. Remove the solder. 2. Remove 2 screws (1, 2). 3. Remove 2 screws (3, 4). 4. Remove the cassette cover.</p>	<b>Procedure 1→2→3→7</b>	 <p>• Remove 2 screws (1, 2).</p>

Ref. No. 8	<b>Removal of the Open Switch Knob</b>	Ref. No. 9	<b>Removal of the FF and REW Button</b>
<b>Procedure 1→8</b>	 <p>1. Remove 2 claws and then remove the open lever. 2. Remove 2 claws in the direction of arrow and then remove the open switch knob.</p>	<b>Procedure 1→9</b>	 <p>• Remove 4 claws in the direction of the arrow.</p>
Ref. No. 10	<b>Removal of the Hold Knob</b>	Ref. No. 11	<b>Removal of the Selector, REV. mode and Dolby Knobs</b>
<b>Procedure 1→2→10</b>	 <p>• Remove 2 claws in the direction of arrow.</p>	<b>Procedure 1→2→11</b>	 <p>• Remove 4 claws in the direction of arrow.</p>
Ref. No. 12	<b>Removal of the XBS Knob</b>		
<b>Procedure 1→2→3→7→12</b>			 <p>• Remove 2 claws in the direction of arrow.</p>

## ■ TO SET THE DIAL POINTER

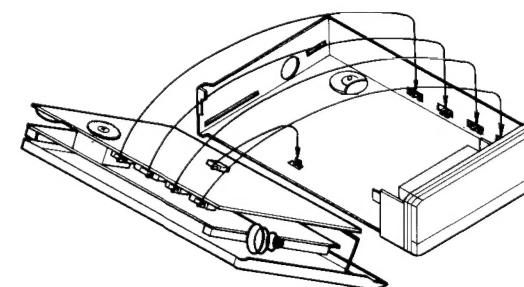


- Fully turn the tuning gear in the direction of arrow.
- Attach the dial pointer.



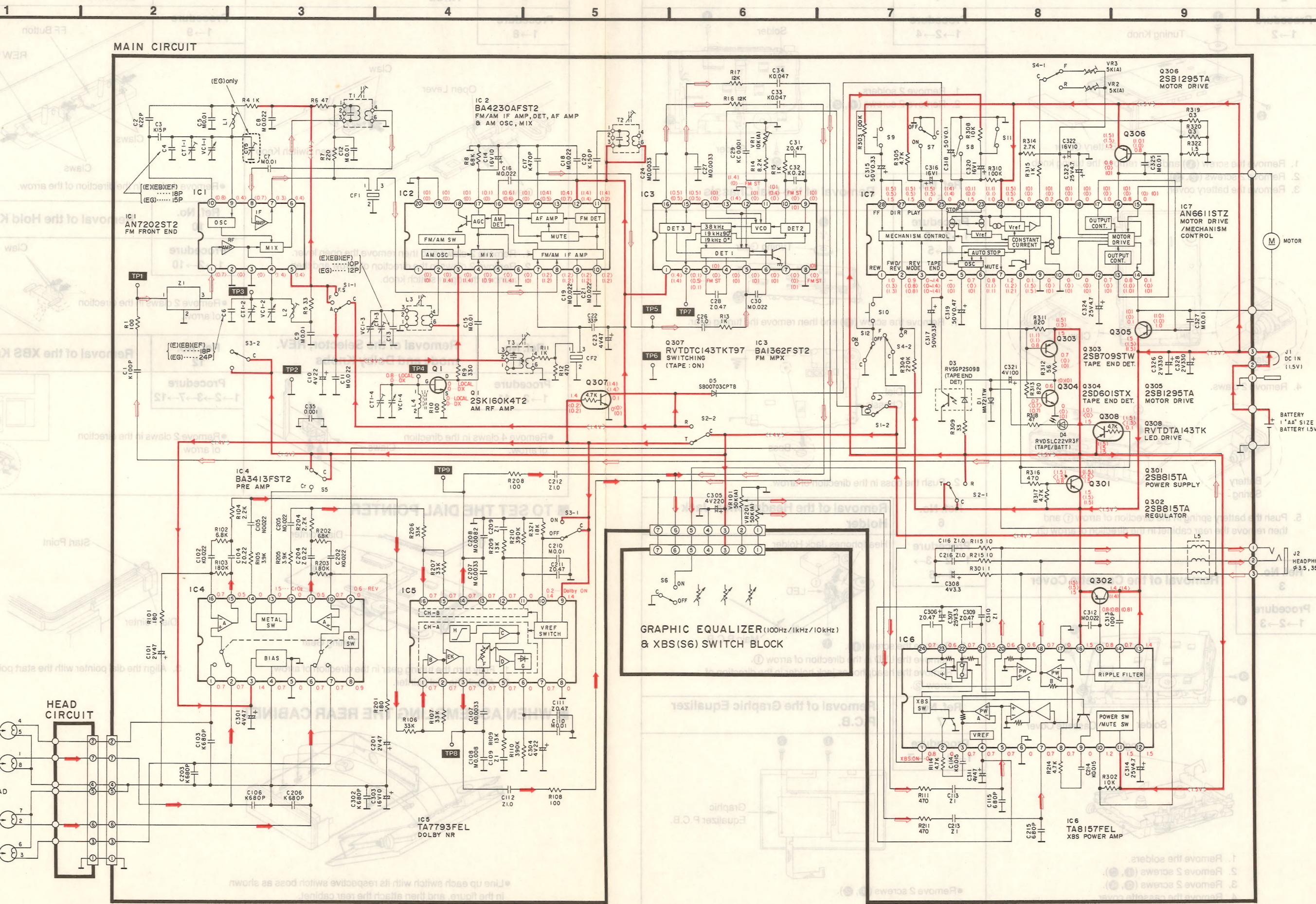
- Align the dial pointer with the start point.

## ■ WHEN ASSEMBLING THE REAR CABINET



- Line up each switch with its respective switch boss as shown in the figure, and then attach the rear cabinet.

## SCHEMATIC DIAGRAM



## CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM

MEASUREMENTS AND ADJUSTMENTS

## Notes:

1. S1-1, S1-2: Reverse mode/Band select switch.  
S1-1: Band select switch in "FM STEREO" position.  
(F.S....FM STEREO, F...FM, A...AM)
2. S2-1, S2-2: Reverse mode select switch in "CD" position.  
Function select switch in "TAPE" position.  
(T...TAPE, R...RADIO)
3. S3-1, S3-2: Dolby NR/FM sens. switch.  
S3-1: Dolby NR switch in "OFF" position.  
S3-2: FM sens. switch in "LOCAL" position.  
(L...LOCAL, D...DX)
4. S4-1~S4-3: FWD/REV mode detect switch in "FWD" position.  
(F...FWD, R...REV)
5. S5: Tape select switch in "NORMAL" position.  
(N...NORMAL, Cr...METAL/CrO<sub>2</sub>)
6. S6: XBS switch.
7. S7: Playback switch.
8. S8: Stop switch.
9. S9: FF/DIRECTION switch.
10. S10: REW switch.
11. S11: Playback switch.
12. S12: HOLD switch in "OFF" position.
13. VR1: FM VCO adjustment VR.
14. VR2: REV. tape speed adjustment VR.
15. VR3: FWD. tape speed adjustment VR.
16. VR101: Volume control VR (Lch).
17. VR201: Volume control VR (Rch).
18. Battery current:  
Vol. min. .... 33 mA (Radio)  
Vol. max. .... 70 mA (Radio)  
220 mA (Tape playback)

## Measurement instruction

(Radio: FM 60 dB, 30% Mod.)

(Tape: 315 Hz, 0 dB)

18. DC voltage measurements are taken with electronic voltmeter.

The negative terminal of the battery provides negative meter connection point.

No mark...PLAYBACK &lt; &gt;...FM ( )...AM

• This schematic diagram may be modified at any time with the development of new technology.

REMARKS

...FM SIGNAL LINE

...FM/PLAYBACK SIGNAL LINE

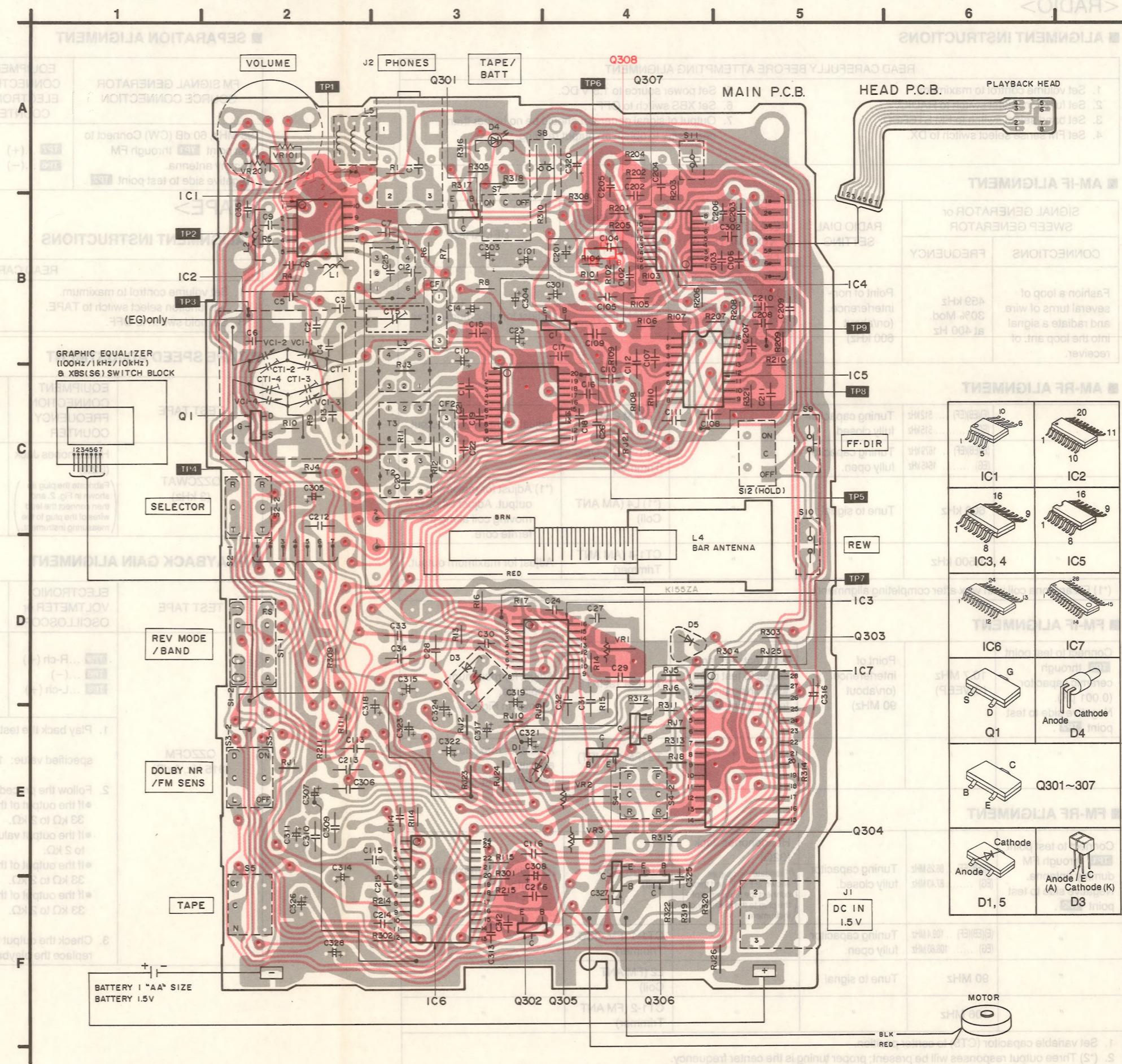
...PLAYBACK SIGNAL LINE

...+B LINE

## Notes:

1. The circuit shown in ( ) on the conductor indicates printed circuit on the back side of the printed circuit board.
2. The circuit shown in ( ) on the conductor indicates printed circuit on the front side of the printed circuit board.
3. The symbols ( ) shown in the circuit board indicate connection points between conductors on the front side and back side of the circuit board.
4. \_\_\_\_\_: Chip resistor
5. \_\_\_\_\_: Chip jumper

• This circuit board diagram may be modified at any time with the development of new technology.



# MEASUREMENTS AND ADJUSTMENTS

&lt;RADIO&gt;

## ■ ALIGNMENT INSTRUCTIONS

READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT	
1. Set volume control to maximum.	5. Set power source to 1.5 V DC.
2. Set function select switch to RADIO.	6. Set XBS switch to OFF.
3. Set band select switch to FM STEREO.	7. Output of signal generator should be no higher than necessary to obtain an output reading.
4. Set FM sense select switch to DX.	

## ■ AM-IF ALIGNMENT

SIGNAL GENERATOR or SWEEP GENERATOR	RADIO DIAL SETTING	EQUIPMENT ELECTRONIC AC VOLTMETER or OSCILLOSCOPE	ALIGNMENT POINT (Shown in Fig. 1.)	REMARKS
CONNECTIONS	FREQUENCY			
Fashion a loop of several turns of wire and radiate a signal into the loop ant. of receiver.	459 kHz 30% Mod. at 400 Hz	Point of non-interference. (on/about 600 kHz)	Headphones Jack (32Ω)  <small>(Fabricate the plug as shown in Fig. 2, and then connect the lead wires of the plug to the measuring instrument.)</small>	T3 (AM IFT)  Adjust for maximum output.

## ■ AM-RF ALIGNMENT

"	(E)(EB)(EF) .... 512 kHz (EG) .... 515 kHz	Tuning capacitor fully closed.	"	L3 (AM OSC Coil)	Adjust for maximum output.
"	(E)(EB)(EF) ... 1679 kHz (EG) .... 1645 kHz	Tuning capacitor fully open.	"	CT1-3 (AM OSC Trimmer)	"
"	600 kHz	Tune to signal	"	(*1) L4 (AM ANT Coil)	(*1) Adjust for maximum output. Adjust L4 by moving coil along the ferrite core.
"	1,500 kHz	"	"	CT1-4 (AM ANT Trimmer)	Adjust for maximum output.

(\*1) Fix antenna coil with wax after completing alignment.

## ■ FM-IF ALIGNMENT

Connect to test point <b>TP3</b> through ceramic capacitor (0.001 μF). Negative side to test point <b>TP2</b> .	10.7 MHz (SWEEP)	Point of interference (on/about 90 MHz)	Connect vert. amp. scope to test point <b>TP5</b> . Negative side to test point <b>TP6</b> .	T1 (FM 1st IFT)	Adjust for maximum amplitude. (Shown in Fig. 3.)
"	"	"	"	T2 (FM 2nd IFT)	Adjust for maximum amplitude. (Shown in Fig. 4.)

## ■ FM-RF ALIGNMENT

Connect to test point <b>TP1</b> through FM dummy antenna. Negative side to test point <b>TP2</b> .	(E)(EB)(EF) ... 86.25 MHz (EG) .... 87.43 MHz	Tuning capacitor fully closed.	Headphones Jack (32Ω)  <small>(Fabricate the plug as shown in Fig. 2, and then connect the lead wires of the plug to the measuring instrument.)</small>	L1 (FM OSC coil)	(*2) Adjust for maximum output.
"	(E)(EB)(EF) ... 109.4 MHz (EG) .... 108.60 MHz	Tuning capacitor fully open.	"	CT1-1 (FM OSC Trimmer)	"
"	90 MHz	Tune to signal	"	L2 (FM ANT Coil)	"
"	106 MHz	"	"	CT1-2 (FM ANT Trimmer)	"

1. Set variable capacitor (CT5) to center position.

2. (\*2) Three output responses will be present; proper tuning is the center frequency.

## ■ SEPARATION ALIGNMENT

FM SIGNAL GENERATOR SOURCE CONNECTION	EQUIPMENT CONNECTION ELECTRONIC COUNTER	ALIGNMENT POINT	SPECIFICATION	REMARKS
98 MHz, 60 dB (CW) Connect to test point <b>TP1</b> through FM dummy antenna. Negative side to test point <b>TP2</b> .	<b>TP7</b> ... (+) <b>TP6</b> ... (-)	VR1 (Shown in Fig. 5.)	19 kHz ± 100 Hz	Adjust VR1, for 19 kHz ± 100 Hz reading on frequency counter.

## <TAPE>

## ■ ALIGNMENT INSTRUCTIONS

READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT	
1. Set volume control to maximum.	4. Set DOLBY NR switch to OFF.
2. Set function select switch to TAPE.	5. Set tape select switch to NORMAL.
3. Set hold switch to OFF.	6. Set power source voltage to 1.5 V DC.

## ■ TAPE SPEED ADJUSTMENT

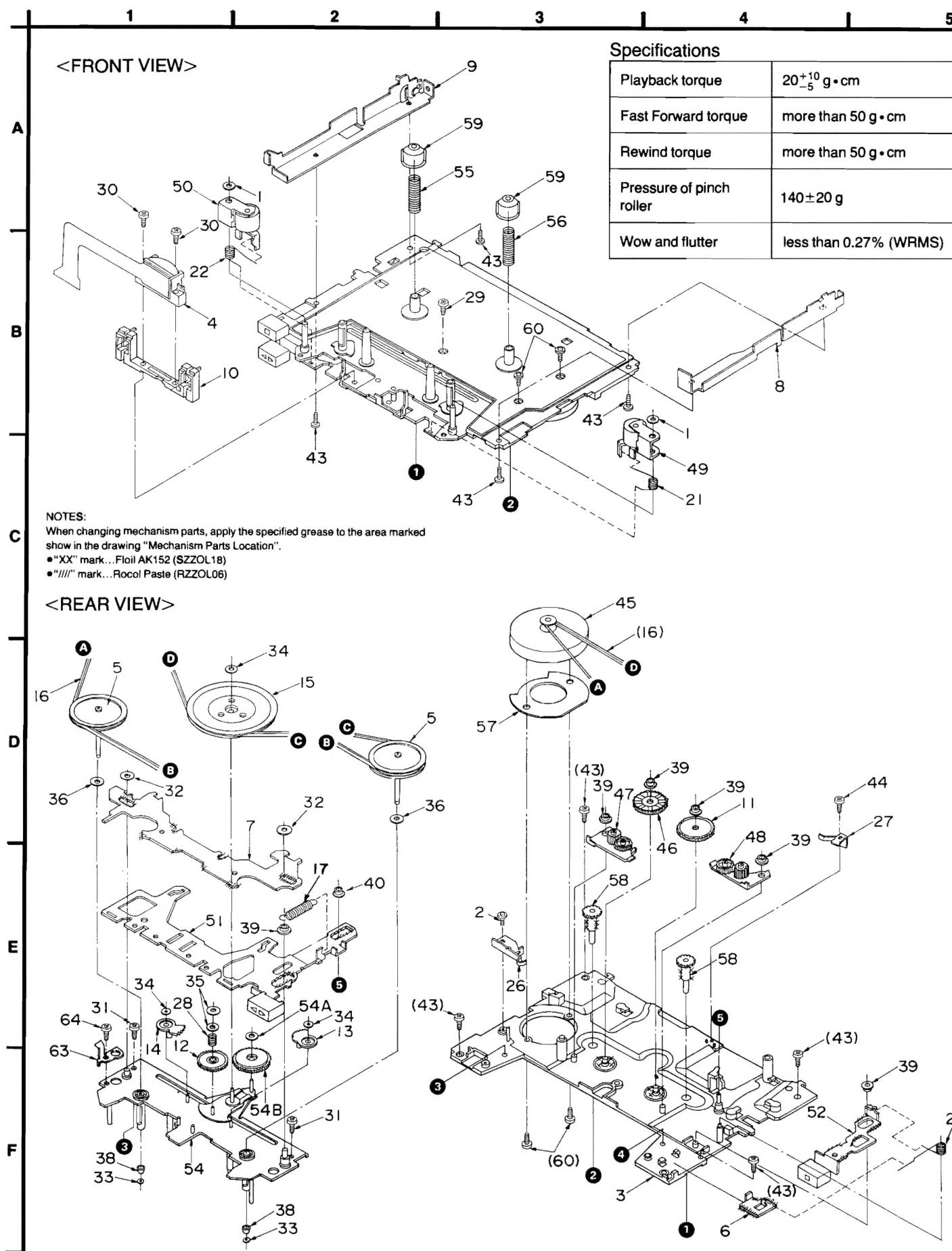
TEST TAPE	EQUIPMENT CONNECTION FREQUENCY COUNTER	SPECIFICATION	ADJUSTMENT	REMARKS
QZZCWAT (3 kHz)	Headphones Jack (32Ω)  <small>(Fabricate the plug as shown in Fig. 2, and then connect the lead wires of the plug to the measuring instrument.)</small>	3,000 ± 30 Hz	VR3...FWD VR2...REV (Shown in Fig. 5.)	Playback mode.

## ■ PLAYBACK GAIN ALIGNMENT

TEST TAPE	ELECTRONIC VOLTMETER or OSCILLOSCOPE	SPECIFICATION	ADJUSTMENT	REMARKS
QZZCFM (315 Hz, 0 dB)	<b>TP9</b> ... R-ch (+) <b>TP6</b> ... (-) <b>TP8</b> ... L-ch (+)	17.5 mV ± 1 dB	R206, R207 (R-ch) R106, R107 (L-ch)  <small>(Refer to circuit board and wiring connection diagram.)</small>	1. Play back the test tape and check if the output values are within the value specified.  specified value: 17.5 mV ± 1 dB

- Follow the procedure below if the output values are not within the specified value.
  - If the output of the R-ch is higher than the specified value, change the resistance value of R206 from 33 kΩ to 2 kΩ.
  - If the output value of the R-ch is lower than the specified value, change the value of R207 from 33 kΩ to 2 kΩ.
  - If the output of the L-ch is higher than the specified value, change the resistance value of R106 from 33 kΩ to 2 kΩ.
  - If the output of the L-ch is lower than the specified value, change the resistance value of R107 from 33 kΩ to 2 kΩ.
- Check the output values in forward and reverse playback. If the values are not within the specification, replace the playback head.

## MECHANISM PARTS LOCATION



## ■ ALIGNMENT POINT

\*Please refer to Circuit Board and Wiring Connection Diagram for test point locations.

## MAIN P.C.B.

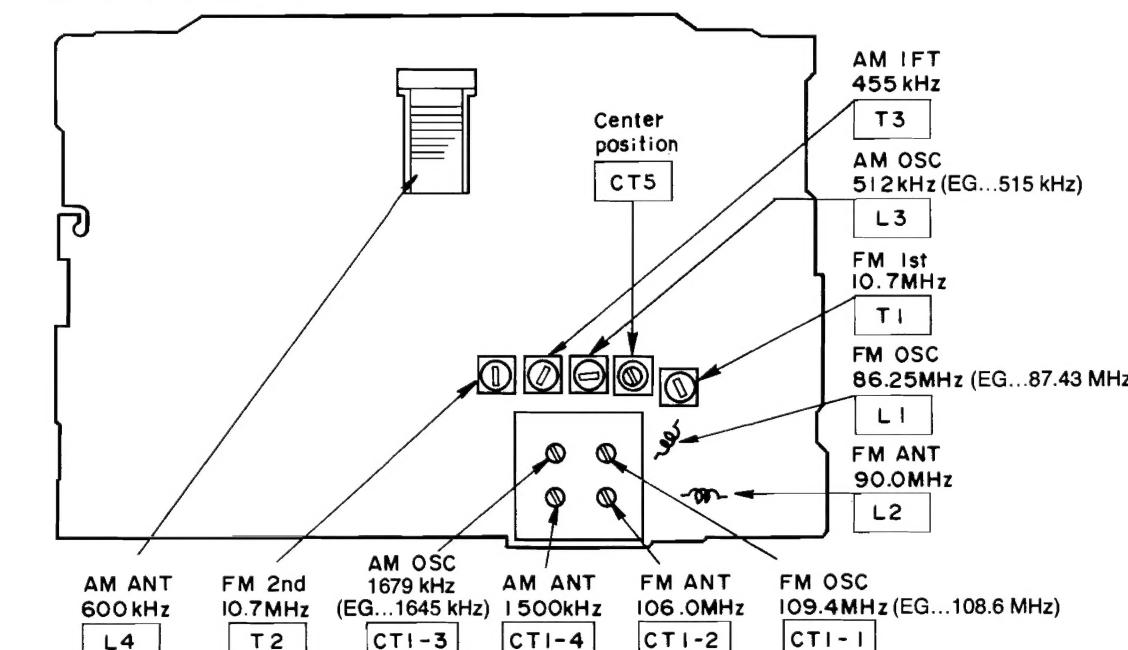


Fig. 1

## MAIN P.C.B.

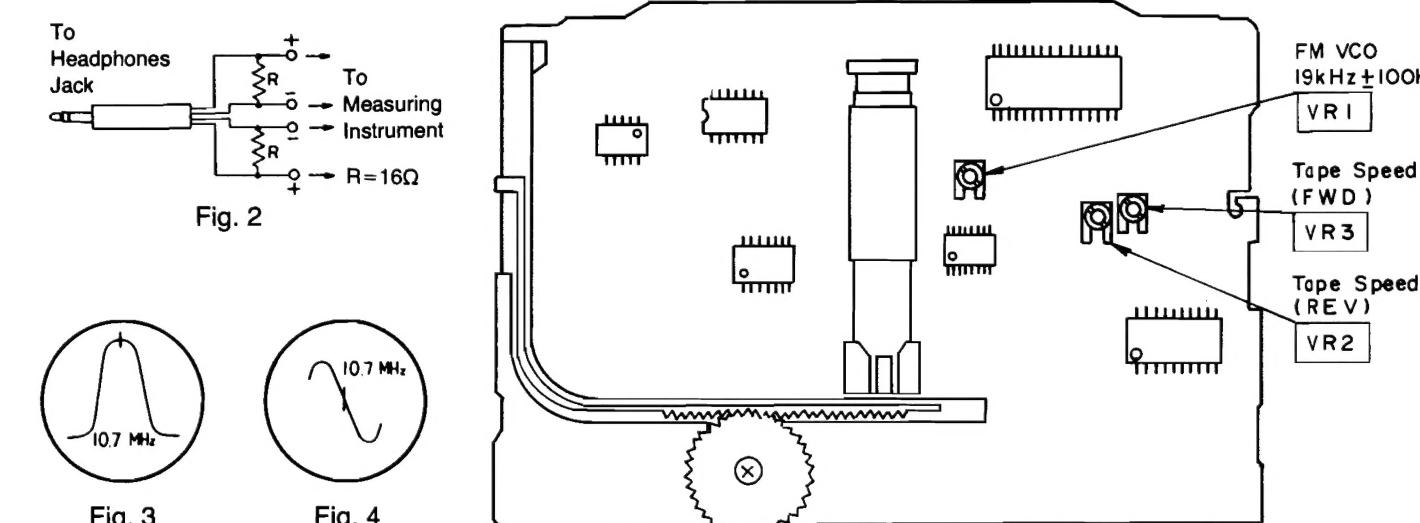
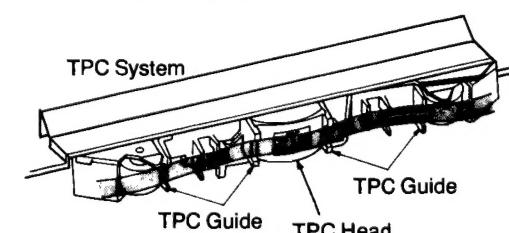


Fig. 5

## \* Tape Pass Control

This unit uses the TPC system making the head azimuth adjustment unnecessary.

## TPC System Outline



The TPC guides on both sides of the head and on one side of the pinch rollers are installed in such a way (see Fig. 6) that the tape will run evenly and along the headgap at the right angle. The head azimuth adjustment is therefore unnecessary; there are no head azimuth adjustment screws. The TPC guides on one side of the pinch rollers also control the disturbance caused by the tape width and speed in the forward and reverse mode.

Fig. 6

## REPLACEMENT PARTS LIST

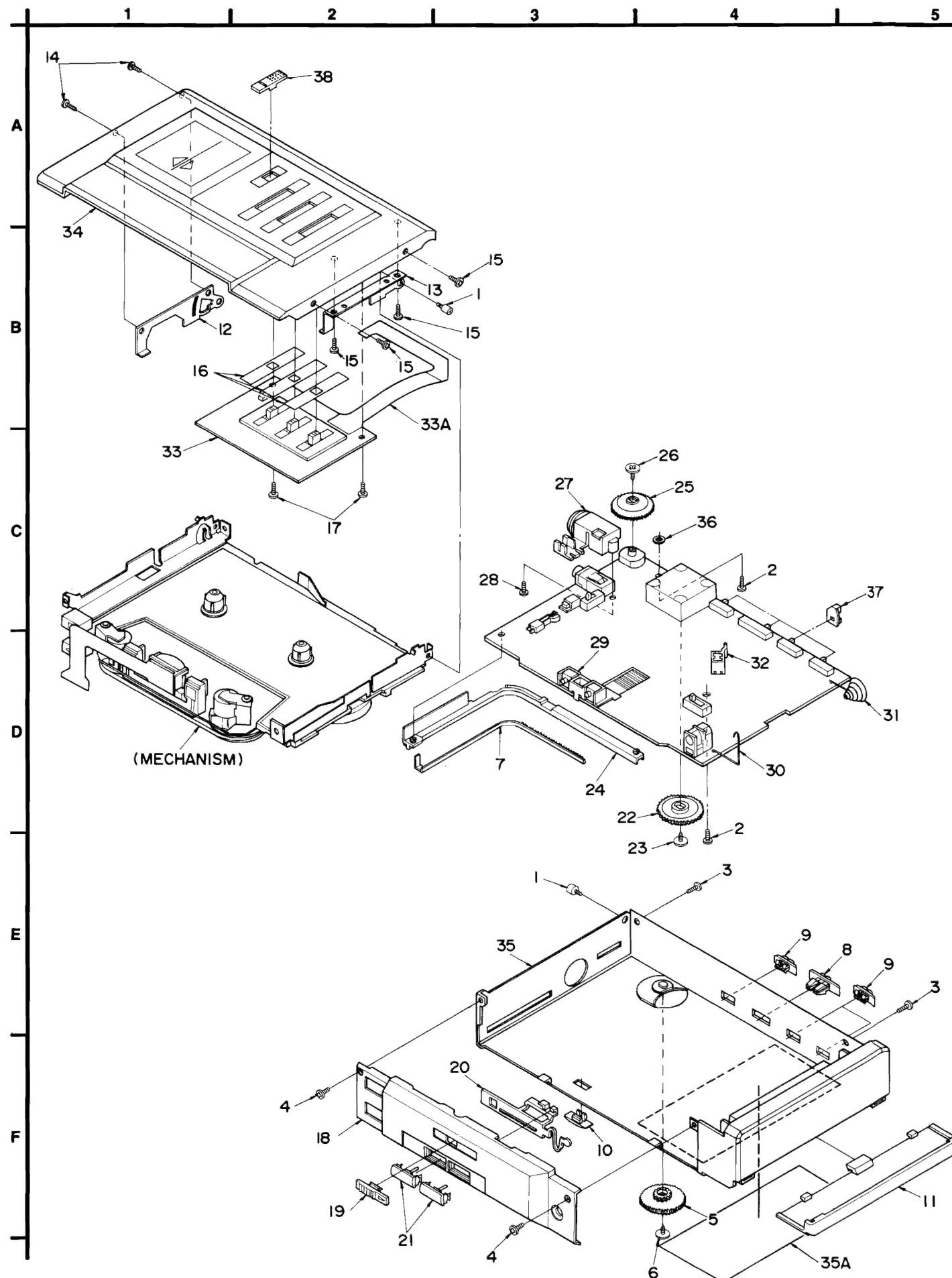
Notes : \* Important safety notice : Components identified by  $\triangle$  mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.  
 \* Bracketed indications in Ref. No. columns specify the area. (Refer to the first page for area.)  
 Parts without these indications can be used for all areas.

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description			
INTEGRATED CIRCUITS								
IC1	AN7202S	I.C. FRONT END	L1	RL04N245-0	COIL			
IC2	BA4230AFST2	I.C. I.F AMP/OSC/DET	(EG)					
IC3	BA1362FST2	I.C. FM MPX	L1	RL04Y148	COIL			
IC4	BA3413FST2	I.C. PRE AMP/SWITCHING	(E, EB, EF)					
IC5	TA7793FEL	I.C. DOLBY	L2	RL04Y166-0	COIL			
IC6	TA8157FEL	I.C. POWER AMP	L3	RL02A002-M	COIL			
IC7	AN6611ST2	I.C. MOTOR CONT.	L4	RLV2N002-0	BAR ANTENNA			
TRANSISTORS								
Q1	2SK160K4T2	TRANSISTOR	L5	RLQUR63K	COIL			
Q301	2SB815TA	TRANSISTOR	T1	RL14A27	I.F. TRANSFORMER			
Q302	2SB815TA	TRANSISTOR	T2	RLK4A001-M	AF TRANSFORMER			
Q303	2SB709S	TRANSISTOR	T3	RL12A40-M	I.F. TRANSFORMER			
Q304	2SD601R	TRANSISTOR	COMPONENT COMBINATIONS					
Q305	2SB1295TA	TRANSISTOR	Z1	RXABPM8	COMPONENTS COMBINATION			
Q306	2SB1295TA	TRANSISTOR	FILTERS					
Q307	RVTDT143TKT	TRANSISTOR	CF1	QCRZ107MA5	CERAMIC FILTER			
DIODES			CF2	RVFPFA459A	CERAMIC FILTER			
D1	MA721TW	DIODE	SWITCHES					
D3	RVSGP2509B	COMPONENT COMBINATION	S1	RSS3B32Z	SW. REC MODE/BAND			
D4	RVDSL22VR3F	L.E.D	S2	RSS2B56Z	SW. FUNCTION			
D5	SB00703CPTB	DIODE	S3	RSS2B56Z	SW. DOLBY/FM SENS.			
VARIABLE RESISTORS			S4	ESD1132255	SW. FWD/REV MODE			
VR1	RVNEA14B1XF	V.R. FM VCO	S5	RSS2B56Z	SW. TAPE			
VR2	RVNEA5B1XF	V.R. TAPE SPEED(REV)	S6	RSS2A61YA-L	SW. XBS			
VR3	RVNEA381XF	V.R. TAPE SPEED(FWD)	S7	ESD1132255	SW. PLAYBACK			
VR101	EVUBAAT50A54	V.R. VOLUME	S8	RSH1A072A-H	SW. STOP			
VR201	EVUBAAT50A54	V.R. VOLUME	S9	RSG001	SW. FF/DIRECTION			
VARIABLE CAPACITORS			S10	RSG001	SW. REV			
CT5 (EG)	ECRKN010C21	TRIMMER CAPACITOR	S11	RSH1A001-U	SW. PLAYBACK			
VC1	RCV4PCT6V-M	VARIABLE CAPACITOR	S12	RSS2A61YA-L	SW. HOLD			
OTHERS			OTHERS					
J1	RJJB2Z	JACK, DC IN	J1	RJJB2Z	JACK, DC IN			
J2	RJJD3S5Z	JACK, HEADPHONS	J2	RJJD3S5Z	JACK, HEADPHONS			

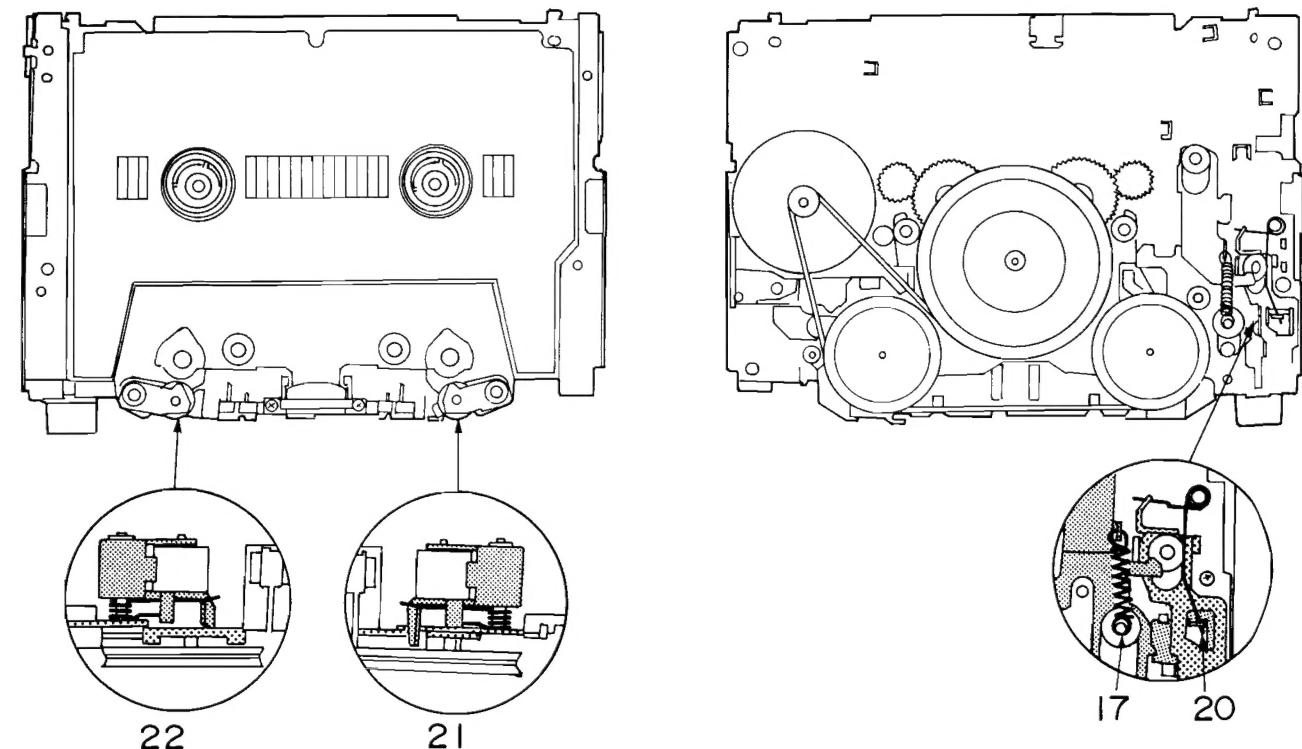
Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
CABINET AND CHASSIS					
1	RHE5123Y	SCREW	25	RBT325ZA-0	KNOB, VOLUME
2	RHE5079Z	SCREW	26	XSHR174FZ	SCREW
3	RHE5097Z	SCREW	27	RMPK16ZA-0	HOLDER
4	RHEK5008ZA	SCREW	28	RHE5079Z	SCREW
5	RBTK192A-0	KNOB, TUNING	29	RMWK32A	HOLDER
6	RHE5119YA	SCREW	30	RJCK30004ZA	BATT. TERMINAL
7	RDPK535ZA-0	DIAL POINTER	31	RJCK70004ZA	BATT. SPRING
8	RYTQV340E	BUTTON, REV MODE/BAND	32	RHR1382ZA	HOLDER
9	RBDK772A-0	KNOB, SELECTOR/DOLBY	33	QEMK1146	G.EQ ASS'Y
10	RBDK612A-0	KNOB, HOLD	33A	RUPK156ZA	P.C.B
11	RKK272A-0	BATT. COVER	34	RYQQV340E	CASSETTE LID
12	RJLK292A	ANGLE	35	RYFQV340E	REAR CABINET ASS'Y
13	RYEQV340E	ANGLE ASS'Y	35	RYFQV340EB	REAR CABINET ASS'Y
14	RHE5101Y	SCREW	(EB, EF)		
15	RHEK5009ZA	SCREW	35	RYFQV340EG	REAR CABINET ASS'Y
16	RHRK2004ZA	SCREW	(EG)		
17	RHE5119YA	SCREW	35A	RGTK90WA-0	NAME PLATE
18	RKM602A-0	SIDE CABINET	(EG)		
19	RBDK782A-0	BUTTON, OPEN	35A	RGTK90YA-0	NAME PLATE
20	RUBK252A	LEVER	(E)		
21	RGU0013-S	BUTTON, FF/DIR, REV	35A	RGTK90ZA-0	NAME PLATE
22	RDGK5630ZA	GEAR	(EB, EF)		
23	XSHR172FZ	SCREW	36	RNWK2021ZA	WASHER
24	RUAK612A	CHASSIS	37	RHRK548ZA	SPACER
			38	RBDK80YA-0	KNOB, XBS

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description			
PACKING MATERIAL								
P1	RPKK1136ZA	GIFT BOX	P6	RPEK178ZA	SPACER			
P2	RPNK3069ZA	CUSHION	P7	RPEK162ZA	SCREW			
P3	RPEK176ZA	PAD	ACCESSORIES					
P4	RPEK177ZA	SCREW	A1	RP-HV134SY-0	HEADPHONE			
P5	RPEK119ZA	CUSHION	A2	1KEAKV320ZA0	BELT CLIP ASS'Y			
			A3	RQXK4119ZA	INST. MANUAL			

## CABINET PARTS LOCATION

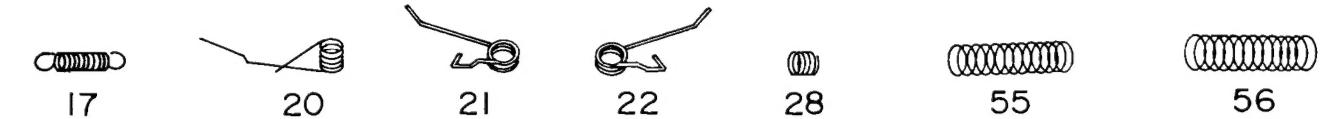


### ■ SPRING LOCATION



### ■ SPRING ILLUSTRATION

The illustration shows the actual size of the springs so it can be used to check their shapes.  
(The illustration shows the springs separated from the mechanism.)



### ■ REPLACEMENT PARTS LIST

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
<b>CASSETTE DECK</b>					
1	QBW2129	WASHER	32	QBK92126	WASHER
2	XQN14+CQ25FZ	SCREW	33	RNW103ZA	WASHER
3	RFU170ZB	CHASSIS ASS'Y	34	RNW137ZA	WASHER
4	1JH0036ZAM	HEAD ASS'Y	35	RNW142ZA	WASHER
5	IDWAKAR40RZA	FLYWHEEL ASS'Y	36	RNWK1520ZA	WASHER
6	RNR82ZA	ANGLE	38	RHK547ZA	SPACER
7	RNR84ZB	ROD	39	RHR128Z	BUSHING
8	RMA0011	ANGLE	40	RHR3376ZA	BUSHING
9	RMA0010	ANGLE	43	RHE5097ZB	SCREW
10	RUGK9ZA	HOLDER	44	XQN16+AQ16	SCREW
11	RNG140ZA	GEAR	45	RWEQV340E	MOTOR ASS'Y
12	RNG145ZB	GEAR	46	1NGAKAR40RZA	GEAR ASS'Y
13	RNG146ZA	GEAR	47	1NLAKAR40RZA	LEVER ASS'Y
14	RNG147ZA	GEAR	48	2NLAKAR40RZA	LEVER ASS'Y
15	RDR147ZB	PULLEY	49	1NLAKAR40PZA	PINCH ROLLER ASS'Y
16	RDV112ZA	BELT	50	2NLAKAR40PZA	PINCH ROLLER ASS'Y
17	RUD127ZB	SPRING	51	1NRAKAR40PZA	BUTTON ASS'Y, PLAY
20	RUN201ZA	SPRING	52	2NRAKAR40RZA	BUTTON ASS'Y, STOP
21	RUN202ZA	SPRING	54	1UAAKAR40RZB	CHASSIS ASS'Y
22	RUN203ZA	SPRING	54A	RNW137ZA	WASHER
26	RUS72ZA	SPRING	54B	2NGAKAR40RZB	GEAR
27	RUA776ZA	SPRING	55	RUC120ZA	SPRING
28	RUQ117ZA	SPRING	56	RUC121ZA	SPRING
29	XQN14+C25FZ	SCREW	57	RMC1229ZB	SHIELD PLATE
30	XQN14+CM6.5	SCREW	58	RNG139ZA	GEAR
31	XQS14+A25FZ	SCREW	59	RDM25ZA	REEL TABLE
			60	XQN17+A18FZ	SCREW
			63	RUS775ZA	SPRING
			64	XQN14+C22FZ	SCREW

## ■ RESISTORS & CAPACITORS

### Notes : \* Important safety notice :

Components identified by  mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.

\* Bracketed indications in Ref. No. columns specify the area. (Refer to the first page for area.)

Parts without these indications can be used for all areas.

### Numbering System For Resistors

#### Example:

ERD	25	F	J	102
Type	Wattage	Shape	Tolerance	Value
	(1/4W)	(1KΩ)		(1KΩ)

ERX	2	AN	J	471
Type	Wattage	Shape	Tolerance	Value
	(2W)			(470Ω)

Resistor Type	Wattage	Tolerance
ERD : Carbon	10 : 1/8W	J : ±5%
ERG : Metal Oxide	14 : 1/4W	F : ±1%
ERQ : Fuse Type Metal	1A : 1W	G : ±2%
ERX : Metal Film	S2 : 1/4W	J : ±5%
ERD L : Carbon (chip)	2F : 1/4W	K : ±10%
ERO K : Metal Film (chip)	2A : 2W	M : ±20%
ERC : Solid	6G : 1/10W	
ERF : Incombustible	8G : 1/8W	
ERM : Box-Shaped		
RRJ : Wire-Wound		
RRJ : Chip Resistor		
ERJ : Chip Resistor		

### Numbering System For Capacitors

#### Example:

ECKD	1H	102	Z	F
Type	Voltage	Value	Tolerance	Unique
	(50V)	(0.001μF)		

ECEA	50	M	330	
Type	Voltage	Characteristics	Value	(33μF)

Capacitor Type	Voltage	Tolerance
ECE : Electrolytic	0J : 6.3V	K : ±10%
ECCD : Ceramic	1C : 16V	M : ±20%
ECKD : Ceramic Capacitor	1H : 50V	Z : +80 %
ECQM : Polyester	50 : 50V	-20 %
ECQP : Polypropylene	2H : 500V	J : ±5%
ECG : Ceramic	2A : 100V	G : ±2%
ECEA N : Non Polar Electrolytic	1 : 100V	F : ±1%
QCU : Ceramic (Chip Type)	1J : 63V	C : ±0.25pF
ECUX : Ceramic (Chip Type)	KC : 400V AC	
ECF : Semiconductor	KC : 125V AC	
EECW : Liquid electrolyte	(UL)	D : ±0.5pF

● Capacity values are in microfarads (μF) unless specified otherwise, P = Pico-farads (pF) F = Farads (F).

● Resistance values are in ohms (Ω), unless specified otherwise, 1K = 1,000Ω, 1M = 1,000kΩ

Ref. No.	Part No.	Value.	Ref. No.	Part No.	Value.	Ref. No.	Part No.	Value.
C103	RCUV1H681KB	680P 50	C207	RCUV1H332MB	0.0033 50	C311	ECEA0GKS470L	47 4
C104	ECUV1C224KR	0.22 16	C208	RCUV1H822MB	0.0082 50	C312	RCUV1E223MB	0.022 25
C105	RCUV1E223MB	0.022 25	C209	ECUV1C105ZF	1 16	C313	ECEA1HKDR47L	0.47 50
C106	RCUV1H681KB	680P 50	C210	RCUV1E103MB	0.01 25	C314	ECEA1EKS47L	4.7 25
C107	RCUV1H332MB	0.0033 50	C211	ECUV1C474ZF	0.47 16	C315	ECEA1HKS33	0.33 50
C108	RCUV1H822MB	0.0082 50	C212	ECUV1C105ZF	1 16	C316	ECSTCY105L	1 16
C109	ECUV1C105ZF	1 16	C213	ECUV1C105ZF	1 16	C317	ECEA1HKS33	0.33 50
C110	RCUV1E103MB	0.01 25	C214	RCUV1E153KB	0.015 25	C318	ECEA1HKS47L	0.1 50
C111	ECUV1C474ZF	0.47 16	C215	RCUV1H681KB	680P 50	C319	ECSTCY105R	1 16
C112	ECUV1C105ZF	1 16	C216	ECUV1C105ZF	1 16	C320	ECEA0GKS101L	100 4
C113	ECUV1C105ZF	1 16	C301	ECEA0GKS470L	47 4	C321	ECEA0GKS101L	100 4
C114	RCUV1E153KB	0.015 25	C302	RCUV1H681KB	680P 50	C322	ECEA1HKS010L	1 50
C115	RCUV1H681KB	680P 50	C303	ECEA1CKD100L	10 16	C323	ECEA1EKS47L	4.7 25
C116	ECUV1C105ZF	1 16	C304	ECEA0GKS220L	22 4	C324	ECEA1EKS47L	4.7 25
C201	ECEA0DKD470L	47 2	C305	ECEA0GKS221L	220 4	C325	RCUV1E103MB	0.01 25
C202	RCUV1E103KB	0.01 25	C306	ECUV1C474ZF	0.47 16	C326	ECEA0DPD331I	330 2
C203	RCUV1H681KB	680P 50	C307	ECEA1EK3R3	3.3 25	C327	RCUV1E103MB	0.01 25
C204	ECUV1C224KR	0.22 16	C308	ECSTGY335R	3.5 4	C328	ECEA0DPD331I	330 2
C205	RCUV1E223MB	0.022 25	C309	ECUV1C474ZF	0.47 16	C329	RCBC1H101KBY	100P 50
C206	RCUV1H681KB	680P 50	C310	ECUV1C105ZF	1 16	C329	RCBC1H101KBY	100P 50

Ref. No.	Part No.	Value.	Ref. No.	Part No.	Value.	Ref. No.	Part No.	Value.
RESISTORS(VALUE,WATTAGE)								
R215	RRJ6GCJ100TE	10 1/10	C4	RCUV1H150XC	15P 50V			
R301	RRJ6GCJ10TE	1 1/10	(EG)					
R302	RRJ6GCJ103TE	10K 1/10	C4	RCUV1H180KC	18P 50			
R303	RRJ6GCJ104TE	100K 1/10	(E, EB, EF)					
R304	RRJ6GCJ224TE	220K 1/10	C5	RCUV1E103MB	0.01 25			
R305	RRJ6GCJ472TE	4.7K 1/10	C6	RCUV1H180KC	18P 50			
R308	RRJ6GCJ103TE	10K 1/10	(E, EB, EF)					
R309	RRJ6GCJ330	33 1/10	C6	RCUV1H240KC	24P 50			
R310	RRJ6GCJ104TE	100K 1/10	(EG)					
R311	RRJ6GCJ821TE	820 1/10	C7	RCUV1E103MB	0.01 25			
R312	RRJ6GCJ5R6TE	5.6 1/10	C8	RCUV1E223MB	0.022 25			
R313	RRJ6GCJ821TE	820 1/10	C9	RCUV1E103MB	0.01 25			
R314	RRJ6GCJ272TE	2.7K 1/10	C10	ECEA0GKS220L	22 4			
R315	ERSA10J102	1K 1/8	C11	RCUV1E223MB	0.022 25			
R316	RRJ6GCJ471TE	470 1/10	C12	RCUV1E103MB	0.01 25			
R317	RRJ6GCJ472TE	4.7K 1/10	C13	RCUV1H100KC	10P 50			
R318	RRJ6GCJ470TE	47 1/10	(E, EB, EF)					
R319	RRJ6GCJ1R5TE	1.5 1/10	C14	ECEA1CKS100	10 16			
R320	ERSA38JR30	0.3	C15	RCUV1E103MB	0.01 25			
R321	RRJ6GCJ183TE	18K 1/10	C16	RCUV1E223MB	0.022 25			
R322	RRJ6GCJ1R5TE	1.5 1/10	C17	RCUV1H471KB	470P 50			
RJ1	RRJ6GCJ000TE		C18	RCUV1E223MB	0.022 25			
RJ2	RRJ6GCJ000TE		C19	RCUV1E223MB	0.022 25			
RJ3	RRJ6GCJ000TE		C20	RCUV1H151KB	330P 50			
RJ4	RRJ6GCJ000TE		C21	RCUV1E223MB	0.022 25			
RJ5	RRJ6GCJ000TE		C22					